

WHAT IS CLAIMED IS:

1. An apparatus for developing a latent image recorded on a surface, comprising:

wire supports;

a donor member spaced from the surface and being adapted to transport toner to a region opposed from the surface;

an electrode member positioned in the space between the surface and the donor member, the electrode member being closely spaced from the donor member and being electrically biased to detach toner from the donor member thereby enabling the formation of a toner cloud in the space between the electrode member and the surface with detached toner from the toner cloud developing the latent image, wherein opposed end regions of the electrode member are attached to wire supports adapted to support the opposed end regions of said electrode member; and

a coating on at least a portion of nonattached regions of said electrode member, wherein said coating comprises a polymer comprising a partly fluorinated polymer.

2. An apparatus in accordance with claim 1, wherein said partly fluorinated polymer is soluble in fluorinated solvents.

3. An apparatus in accordance with claim 1, wherein said partly fluorinated polymer has the following Formula I:



wherein n represents a number of from about 0 to about 25; R₁ and R₂ are the same or different and each is selected from the group consisting of hydrogen, hydroxyl,

hydroxyalkyl, aminoalkyl, aminoaryl, aryloxy, alkyl, aryl, carboxylic acid, carboxylic acid containing groups having from about 1 to about 25 carbons, carbonyl, alkyl ketone carbonyl, and $\text{CF}_3(\text{CF}_2)_o(\text{CH}_2)_p$, wherein o is a number of from about 0 to about 25, and p is a number of from about 1 to about 25, with the proviso that R_1 and R_2 are not both fully fluorinated.

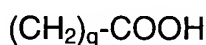
4. An apparatus in accordance with claim 3, wherein in formula I, R_2 is a hydroxyalkyl having from about 1 to about 25 carbons.

5. An apparatus in accordance with claim 4, wherein said partly fluorinated co-solubilizer is selected from the group consisting of $\text{H}(\text{CF}_2)_6\text{CH}_2\text{OH}$, $\text{H}(\text{CF}_2)_{10}\text{CH}_2\text{OH}$, $\text{HOCH}_2(\text{CF}_2)_3\text{CH}_2\text{OH}$, $\text{CHF}_2(\text{CF}_2)\text{CH}_2\text{OH}$, $\text{CF}_3\text{CHF}(\text{CF}_2)\text{CH}_2\text{OH}$, $\text{CF}_3(\text{CF}_2)_2\text{CHOHCH}_3$, and mixtures thereof.

6. An apparatus in accordance with claim 3, wherein in formula I, R_2 is selected from the group consisting of an alkyl carbonyl having from about 1 to about 25 carbons, and an alkyl ketone carbonyl having from about 1 to about 25 carbons.

7. An apparatus in accordance with claim 3, wherein in formula I, R_2 is a carboxylic acid.

8. An apparatus in accordance with claim 7, wherein in formula I, R_2 has the following formula II:



wherein q is a number of from about 1 to about 25.

9. An apparatus in accordance with claim 8, wherein said co-solubilizer is $\text{CF}_3(\text{CF}_2)_2(\text{CH}_2)_2\text{COOH}$.

10. An apparatus in accordance with claim 3, wherein said co-solubilizer is selected from the group consisting of 4-aminononafluorobiphenyl, 4-amino-2,3,5,6-tetrafluorobenzoic acid, 1H,1H,11H-eicosafluoroundecyl acrylate, and mixtures thereof.

11. An apparatus in accordance with claim 1, wherein said partly fluorinated polymer is present in the coating in an amount of from about 0.1 to about 40 percent by weight of total solids.

12. An apparatus in accordance with claim 1, wherein said coating further comprises a metal material selected from the group consisting of superconductors and superconductor precursors.

13. An apparatus in accordance with claim 12, wherein said metal material is selected from the group consisting of monodentate ligands, multidentate ligands, and metal alkoxides.

14. An apparatus in accordance with claim 12, wherein said metal material is selected from the group consisting of copper (II) hexafluoropentanedionate, copper (II) methacryloxyethylacetonacetate, antimony ethoxide, indium hexafluoropentandionate, and mixtures thereof.

15. An apparatus in accordance with claim 12, wherein said metal material is present in the coating in an amount of from about 5 to about 35 percent by weight of total solids.

16. An apparatus in accordance with claim 1, wherein said coating further comprises a fluorinated solvent.

17. An apparatus in accordance with claim 16, wherein said fluorinated solvent comprises a carbon chain having from about 2 to about 25 carbons.

18. An apparatus in accordance with claim 16, wherein said fluorinated solvent comprises carboxylic acid functionality.

19. An apparatus in accordance with claim 1, wherein said coating has a thickness of from about 1 μm to about 5 μm .

20. An apparatus in accordance with claim 1, wherein said coating is present on from about 10 to about 90 percent of said electrode member.

21. An apparatus in accordance with claim 1, wherein said electrode member includes more than one thin diameter wires.

22. An apparatus for developing a latent image recorded on a surface, comprising:

wire supports;

a donor member spaced from the surface and being adapted to transport toner to a region opposed from the surface;

an electrode member positioned in the space between the surface and the donor member, the electrode member being closely spaced from the donor member and being electrically biased to detach toner from the donor member thereby enabling the formation of a toner cloud in the space between the electrode member and the surface with detached toner from the toner cloud developing the latent image, wherein opposed end regions of the electrode member are attached to wire supports adapted to support the opposed end regions of said electrode member; and

a coating on at least a portion of nonattached regions of said electrode member, wherein said coating comprises a) a polymer comprising a partly fluorinated polymer and b) a fluorinated solvent.

23. An apparatus for developing a latent image recorded on a surface, comprising:

wire supports;

a donor member spaced from the surface and being adapted to transport toner to a region opposed from the surface;

an electrode member positioned in the space between the surface and the donor member, the electrode member being closely spaced from the donor member and being electrically biased to detach toner from the donor member thereby enabling the formation of a toner cloud in the space between the electrode member and the surface with detached toner from the toner cloud developing the latent image, wherein opposed end regions of the electrode member are attached to wire supports adapted to support the opposed end regions of said electrode member; and

a coating on at least a portion of nonattached regions of said electrode member, wherein said coating comprises a) a polymer comprising a partly fluorinated polymer, b) a fluorinated solvent, and c) a superconductor precursor.